

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Applicant: Friddle et al.

U.S. Ser. No.: To be assigned

Attorney Docket No.: LEX-0290-USA

Filing Date: December 13, 2001

For: Novel Human Thrombospondin
Repeat Proteins and Polynucleotides
Encoding the Same

VERIFIED STATEMENT

Box Patent Application
Commission for Patents
Washington, D.C. 20231

Sir:

I, DRENDA D. THOMAS, do declare and state as follows:

1. I prepared a Sequence Listing in paper and computer readable form under 37 C.F.R. Sec. 1.821-1.825 in connection with the above-captioned patent application, both of which are being submitted herewith.

2. I hereby state that the contents of the paper and computer readable copies of the Sequence Listing are the same.

Signed,

December 13, 2001
Date


Drenda D. Thomas

SEQUENCE LISTING

<110> Friddle, Carl Johan
Aylor, Erin
Walke, D. Wade

<120> Novel Human Thrombospondin Repeat
Proteins and Polynucleotides Encoding the Same

<130> LEX-0290-USA

<150> US 60/259,033

<151> 2000-12-28

<160> 7

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 4398

<212> DNA

<213> homo sapiens

<400> 1

```

atggtgcgct gcattcagaa gctgaaccga actgtgggtg caaatgaaat atgcgaacac 60
tttgcccttc agcctcctac agaacaggct tgcctcattc cttgtccccg ggatttgtgta 120
gtatctgagt tcttaccatg gtccaactgt agcaagggat gtgggaagaa attgcagcat 180
agaactcgcg cggcatagac tccccctctc tttgggtggt tgcaatgtcc aaatctgact 240
gagtcaagag cctgtgatgc tcccatttcc tgtcctcttg gggaagagga atatacattt 300
agccttaagg ttggaccatg gagtaaatgc agactgcctc atcttaaaga aattaatcca 360
agcggaagaa ctgttcttga ttttaactct gattcaaatg agcgagtcac ctttaaacaat 420
caaagttaca aagcacatca tcattcgaag tcttgggcaa tagagatagg ttatcaaacc 480
cggcagggtt cgtgtacaag aagtgatgga caaatgcta tgtaagcct ttgccttcaa 540
gattccttcc cattgactgt tcagtcctgc atcatgcca aagactgtga aacctcccag 600
tggtcctcct ggagcccctg ctccaagaca tgccgttcag ggagtctctt gccaggattt 660
aggagcagga gccggaacgt gaagcacatg gctattggag gtggaaagga gtgtcctgaa 720
cttcttgaga aagaggcctg cattgttgaa ggagaacttc tgcagcaatg tccaggtat 780
tcctggagaa cttctgaatg gaaagaatgc caagtctctc tcctcctcga gcagcaggat 840
ccccactggc atgtgacggg acccgtgtgt ggcggtggga tccagacccg ggaggtgtac 900
tgtgcccaga gcgtaccagc agctgccgca ctgaggggcca aggaagtctc tagacctgtg 960
gaaaaggcat tatgtgtggg acccgccccg ttgccctctc agctctgcaa tatcccttgc 1020
tctacggact gcatagtatc ttcttggtca gcctggggcc tgtgcatcca tgaaaactgt 1080
catgaacctc aggggaaaaa aggatttaga acgaggcagc gccatgtcct catggaatct 1140
acagggcctg cagggcattg ccctcatttg gtggagtctg ttccttgtga ggatccaatg 1200
tgctaccgat ggctggcatc agaagggatc tgtttccctg atcatggaaa atgtggcctg 1260
ggacatcgta ttctgaaggc cgtctgccag aatgaccgag gagaagatgt atcaggaggt 1320
ctttgccagc tccccctccc tcctgagagg aagtcttgtg aaattccctg ccgaatggac 1380
tgtgtgctga gcgagtggac ggagtggcca tcctgttccc agtcctgttc aaataaaaac 1440
tcagatggga aacagaccag gtcaagaact atcctggcac tggctgggga aggtggaaaag 1500
ccatgtcccc ctagtcaggc tctccaagag catcgtttgt gtaatgacca ttcctgtatg 1560
cagcttcact gggagacatc gccttggggc ccttgttctg aggacacatt ggtaactgcc 1620
cttaatgcaa ccattggctg gaatggagaa gccacgtgtg gtgtaggcat tcagactcgg 1680
agagtcttct gtgtcaagag tcacgtggga caagtaatga ccaaagatg tccagattct 1740
actcgacctg aaactgtgcg cccctgattt ccccatgca aaaaagactg tattgtgact 1800

```

```

gctttcagtg agtggacacc ctgcccgaagg atgtgccaaag caggaaatgc cacagtaaaa 1860
cagtctcgat acagaatcat catccaagaa gcagccaatg gaggccagga atgccagat 1920
accttatatg aggagagaga gtgtgaagat gtttccttgt gtctgtata tcggtggaag 1980
ccacagaaat ggagcccttg catcttagtg ccagagtctg tctggcaggg aataacgggc 2040
agcagtgaag cctgtggaaa ggggttacaa acaagagctg tctcatgcat ctctgatgac 2100
aaccggtcag cagaaatgat ggaatgcctc aagcagacaa acggcatgcc tctccttgtg 2160
caagaatgca cagtcccatg tcgagaagac tgcaccttca ctgcttggtc caagtttacg 2220
ccctgctcca cgaactgtga agccacaaaa agtaggcggc gacagctcac agggaaaagc 2280
agaaagaagg agaaatgcc aagattctgac ctttaccctc tagtggagac agaactatgt 2340
ccttgtgatg aatttatatc ccaaccttat ggaaactggc cagattgcat tcttccagaa 2400
ggcagaaggg agcctcaccg aggactgcgg gtacaagcag acagcaaaga atgtggagaa 2460
ggcctgcgct ttcgagcagt agcctgttct gataaaaatg gaagacctgt tgacccctcc 2520
ttctgcagca gctctgggta cattcaagaa aaatgtgtca ttccctgccc atttgattgc 2580
aagttaagcg attggtctag ttgggggtct tgcagttcat cttgtggaat tggagtgaga 2640
attcgatcca aatggctaaa agaaaaacct tacaatggag gacgacctg tcccaaactg 2700
gatctcaaga atcaggtaca tgaggcagtc ccatgttaca gtgagtgcaa tcagtattcc 2760
tggttgttag aacactggtc ttcatgcaaa atcaacaatg agctgaggtc cctgcgctgt 2820
ggaggaggaa cacaatctag gaaaatcaga tgtgtgaata ctgcggatgg tgaagggtga 2880
gcagtggata gcaacctgtg caaccaggat gaaattcccc cagaaaccca gtcctgttct 2940
cttatgtgtc ccaatgagtg tgtcatgtct gagtggggac ttggagcaa atgccacag 3000
tcatgcatc cccacacaat gcagagaaga actcgccacc tgctaagacc atcactgaac 3060
tcaaggactt gtgctgaaga ctcacagggt cagccttgcc tcctgaatga aaattgcttc 3120
cagttccagt acaatctaac agagtggagc acatggcagc tgagtgaaaa cgcacctgt 3180
ggtcaaggcg tcaggaccgg cctgctaagc tgtgtgtgca gtgatggcaa gccagtcag 3240
atggaccaat gtgagcagca taatttggag aagccccaga gaatgagcat tccctgcttg 3300
gtggaatgcg tgggtcaactg tcagctctca ggggtggacg cttggacaga gtgttcacag 3360
acctgtggcc atggaggctg aatgagccgg actcgattta tcattatgcc aacccaagga 3420
gaaggacggc catgccccac agagcttacc caggagaaaa cctgccctg gacccctgc 3480
tacagctggg tccttggaac ctggtctgca tgtaaattgg aggggtggag ctgtggggaa 3540
ggagttcaga tccgcagcct ttcctgcatg gtccacagtg gttcaatct tcatgcagct 3600
ggacgtgtcg aggatgcact gtgtggagaa atgccctttc aggacagcat cctgaagcag 3660
ctgtgttctg tgccttgccc aggagactgc catttaacag aatggtcaga gtggagcaca 3720
tgtgaattaa cctgcattga tgggaagaagc tttgagactg tgggccgcca gtctagatca 3780
aggactttta taattcagtc ttttgagaac caagacagct gcccccaaca ggttctagaa 3840
acacgccctt gtacaggagg caaatgttat cactacacat ggaaagcaag tctttggaac 3900
aataacgaac gaactgtatg gtgccagcgt tcagatggcg ttaatgtcac aggaggctgc 3960
tcccctcagg cccgtcctgc tgccattcgg cagtgcattc cagcctgcag aaaaccttc 4020
tctactgta cacaggggtg agtctgtggt tgtgagaagg gctatacaga gataatgaaa 4080
tcaaatgggt tcctggatta tgcataaaa gtaccaggct cagaggataa aaaagctgat 4140
gtgaaaaaac tttctgggaa aaacagacct gtgaattcaa aaatacatga tattttttaa 4200
ggatgggtctc ttcaaccact tgatccagat ggccgagtaa aaatttgggt ttatggcggt 4260
tcaggtggcg cttttctcat catgattttc ctaatattta cttcctacct tgtttgcaag 4320
aagccaaaac cacatcaaag cacacctccc caacagaagc ctctgacctt agcctacgat 4380
ggagacttag acatgtaa 4398

```

```

<210> 2
<211> 1465
<212> PRT
<213> homo sapiens

```

```

<400> 2
Met Val Arg Cys Ile Gln Lys Leu Asn Arg Thr Val Val Ala Asn Glu
1          5          10          15
Ile Cys Glu His Phe Ala Leu Gln Pro Thr Glu Gln Ala Cys Leu
20          25          30
Ile Pro Cys Pro Arg Asp Cys Val Val Ser Glu Phe Leu Pro Trp Ser

```

	35							40					45					
Asn	Cys	Ser	Lys	Gly	Cys	Gly	Lys	Lys	Leu	Gln	His	Arg	Thr	Arg	Ala			
Val	Ile	Ala	Pro	Pro	Leu	Phe	Gly	Gly	Leu	Gln	Cys	Pro	Asn	Leu	Thr			
65					70					75					80			
Glu	Ser	Arg	Ala	Cys	Asp	Ala	Pro	Ile	Ser	Cys	Pro	Leu	Gly	Glu	Glu			
				85					90					95				
Glu	Tyr	Thr	Phe	Ser	Leu	Lys	Val	Gly	Pro	Trp	Ser	Lys	Cys	Arg	Leu			
			100					105					110					
Pro	His	Leu	Lys	Glu	Ile	Asn	Pro	Ser	Gly	Arg	Thr	Val	Leu	Asp	Phe			
			115					120					125					
Asn	Ser	Asp	Ser	Asn	Glu	Arg	Val	Thr	Phe	Lys	His	Gln	Ser	Tyr	Lys			
						135					140							
Ala	His	His	His	Ser	Lys	Ser	Trp	Ala	Ile	Glu	Ile	Gly	Tyr	Gln	Thr			
145					150					155					160			
Arg	Gln	Val	Ser	Cys	Thr	Arg	Ser	Asp	Gly	Gln	Asn	Ala	Met	Leu	Ser			
				165					170					175				
Leu	Cys	Leu	Gln	Asp	Ser	Phe	Pro	Leu	Thr	Val	Gln	Ser	Cys	Ile	Met			
			180					185					190					
Pro	Lys	Asp	Cys	Glu	Thr	Ser	Gln	Trp	Ser	Ser	Trp	Ser	Pro	Cys	Ser			
			195				200					205						
Lys	Thr	Cys	Arg	Ser	Gly	Ser	Leu	Leu	Pro	Gly	Phe	Arg	Ser	Arg	Ser			
			210			215					220							
Arg	Asn	Val	Lys	His	Met	Ala	Ile	Gly	Gly	Gly	Lys	Glu	Cys	Pro	Glu			
225					230					235					240			
Leu	Leu	Glu	Lys	Glu	Ala	Cys	Ile	Val	Glu	Gly	Glu	Leu	Leu	Gln	Gln			
				245					250					255				
Cys	Pro	Arg	Tyr	Ser	Trp	Arg	Thr	Ser	Glu	Trp	Lys	Glu	Cys	Gln	Val			
			260					265					270					
Ser	Leu	Leu	Leu	Glu	Gln	Gln	Asp	Pro	His	Trp	His	Val	Thr	Gly	Pro			
			275				280					285						
Val	Cys	Gly	Gly	Gly	Ile	Gln	Thr	Arg	Glu	Val	Tyr	Cys	Ala	Gln	Ser			
	290					295					300							
Val	Pro	Ala	Ala	Ala	Ala	Leu	Arg	Ala	Lys	Glu	Val	Ser	Arg	Pro	Val			
305					310					315					320			
Glu	Lys	Ala	Leu	Cys	Val	Gly	Pro	Ala	Pro	Leu	Pro	Ser	Gln	Leu	Cys			
				325					330					335				
Asn	Ile	Pro	Cys	Ser	Thr	Asp	Cys	Ile	Val	Ser	Ser	Trp	Ser	Ala	Trp			
			340					345					350					
Gly	Leu	Cys	Ile	His	Glu	Asn	Cys	His	Glu	Pro	Gln	Gly	Lys	Lys	Gly			
		355					360					365						
Phe	Arg	Thr	Arg	Gln	Arg	His	Val	Leu	Met	Glu	Ser	Thr	Gly	Pro	Ala			
	370					375					380							
Gly	His	Cys	Pro	His	Leu	Val	Glu	Ser	Val	Pro	Cys	Glu	Asp	Pro	Met			
385					390					395					400			
Cys	Tyr	Arg	Trp	Leu	Ala	Ser	Glu	Gly	Ile	Cys	Phe	Pro	Asp					

				485					490					495			
Glu	Gly	Gly	Lys	Pro	Cys	Pro	Pro	Ser	Gln	Ala	Leu	Gln	Glu	His	Arg		
			500					505					510				
Leu	Cys	Asn	Asp	His	Ser	Cys	Met	Gln	Leu	His	Trp	Glu	Thr	Ser	Pro		
		515					520					525					
Trp	Gly	Pro	Cys	Ser	Glu	Asp	Thr	Leu	Val	Thr	Ala	Leu	Asn	Ala	Thr		
	530					535					540						
Ile	Gly	Trp	Asn	Gly	Glu	Ala	Thr	Cys	Gly	Val	Gly	Ile	Gln	Thr	Arg		
545				550					555						560		
Arg	Val	Phe	Cys	Val	Lys	Ser	His	Val	Gly	Gln	Val	Met	Thr	Lys	Arg		
			565					570						575			
Cys	Pro	Asp	Ser	Thr	Arg	Pro	Glu	Thr	Val	Arg	Pro	Cys	Phe	Leu	Pro		
		580					585					590					
Cys	Lys	Lys	Asp	Cys	Ile	Val	Thr	Ala	Phe	Ser	Glu	Trp	Thr	Pro	Cys		
	595					600					605						
Pro	Arg	Met	Cys	Gln	Ala	Gly	Asn	Ala	Thr	Val	Lys	Gln	Ser	Arg	Tyr		
	610					615					620						
Arg	Ile	Ile	Ile	Gln	Glu	Ala	Ala	Asn	Gly	Gly	Gln	Glu	Cys	Pro	Asp		
625				630					635					640			
Thr	Leu	Tyr	Glu	Glu	Arg	Glu	Cys	Glu	Asp	Val	Ser	Leu	Cys	Pro	Val		
			645					650						655			
Tyr	Arg	Trp	Lys	Pro	Gln	Lys	Trp	Ser	Pro	Cys	Ile	Leu	Val	Pro	Glu		
			660				665						670				
Ser	Val	Trp	Gln	Gly	Ile	Thr	Gly	Ser	Ser	Glu	Ala	Cys	Gly	Lys	Gly		
		675					680					685					
Leu	Gln	Thr	Arg	Ala	Val	Ser	Cys	Ile	Ser	Asp	Asp	Asn	Arg	Ser	Ala		
	690					695				700							
Glu	Met	Met	Glu	Cys	Leu	Lys	Gln	Thr	Asn	Gly	Met	Pro	Leu	Leu	Val		
705				710					715					720			
Gln	Glu	Cys	Thr	Val	Pro	Cys	Arg	Glu	Asp	Cys	Thr	Phe	Thr	Ala	Trp		
			725					730						735			
Ser	Lys	Phe	Thr	Pro	Cys	Ser	Thr	Asn	Cys	Glu	Ala	Thr	Lys	Ser	Arg		
		740					745						750				
Arg	Arg	Gln	Leu	Thr	Gly	Lys	Ser	Arg	Lys	Lys	Glu	Lys	Cys	Gln	Asp		
		755					760					765					
Ser	Asp	Leu	Tyr	Pro	Leu	Val	Glu	Thr	Glu	Leu	Cys	Pro	Cys	Asp	Glu		
	770					775					780						
Phe	Ile	Ser	Gln	Pro	Tyr	Gly	Asn	Trp	Ser	Asp	Cys	Ile	Leu	Pro	Glu		
785				790					795					800			
Gly	Arg	Arg	Glu	Pro	His	Arg	Gly	Leu	Arg	Val	Gln	Ala	Asp	Ser	Lys		
			805					810						815			
Glu	Cys	Gly	Glu	Gly	Leu	Arg	Phe	Arg	Ala	Val	Ala	Cys	Ser	Asp	Lys		
			820					825					830				
Asn	Gly	Arg	Pro	Val	Asp	Pro	Ser	Phe	Cys	Ser	Ser	Ser	Gly	Tyr	Ile		
		835					840						845				
Gln	Glu	Lys	Cys	Val	Ile	Pro	Cys	Pro	Phe	Asp	Cys	Lys	Leu	Ser	Asp		
	850					855					860						
Trp	Ser	Ser	Trp	Gly	Ser	Cys	Ser	Ser	Ser	Cys	Gly	Ile	Gly	Val	Arg		
865				870						875				880			
Ile	Arg	Ser	Lys	Trp	Leu	Lys	Glu	Lys	Pro	Tyr	Asn	Gly	Gly	Arg	Pro		
			885					890						895			
Cys	Pro	Lys	Leu	Asp	Leu	Lys	Asn	Gln	Val	His	Glu	Ala	Val	Pro	Cys		
		900					905						910				
Tyr	Ser	Glu	Cys	Asn	Gln	Tyr	Ser	Trp	Val	Val	Glu	His	Trp	Ser	Ser		
	915					920						925					
Cys	Lys	Ile	Asn	Asn	Glu	Leu	Arg	Ser	Leu	Arg	Cys	Gly	Gly	Gly	Thr		

930		935		940
Gln Ser Arg Lys Ile Arg Cys Val Asn Thr Ala Asp Gly Glu Gly Gly				
945	950	955	960	
Ala Val Asp Ser Asn Leu Cys Asn Gln Asp Glu Ile Pro Pro Glu Thr				
	965	970	975	
Gln Ser Cys Ser Leu Met Cys Pro Asn Glu Cys Val Met Ser Glu Trp				
	980	985	990	
Gly Leu Trp Ser Lys Cys Pro Gln Ser Cys Asp Pro His Thr Met Gln				
	995	1000	1005	
Arg Arg Thr Arg His Leu Leu Arg Pro Ser Leu Asn Ser Arg Thr Cys				
	1010	1015	1020	
Ala Glu Asp Ser Gln Val Gln Pro Cys Leu Leu Asn Glu Asn Cys Phe				
1025	1030	1035	1040	
Gln Phe Gln Tyr Asn Leu Thr Glu Trp Ser Thr Cys Gln Leu Ser Glu				
	1045	1050	1055	
Asn Ala Pro Cys Gly Gln Gly Val Arg Thr Arg Leu Leu Ser Cys Val				
	1060	1065	1070	
Cys Ser Asp Gly Lys Pro Val Ser Met Asp Gln Cys Glu Gln His Asn				
	1075	1080	1085	
Leu Glu Lys Pro Gln Arg Met Ser Ile Pro Cys Leu Val Glu Cys Val				
	1090	1095	1100	
Val Asn Cys Gln Leu Ser Gly Trp Thr Ala Trp Thr Glu Cys Ser Gln				
1105	1110	1115	1120	
Thr Cys Gly His Gly Gly Arg Met Ser Arg Thr Arg Phe Ile Ile Met				
	1125	1130	1135	
Pro Thr Gln Gly Glu Gly Arg Pro Cys Pro Thr Glu Leu Thr Gln Glu				
	1140	1145	1150	
Lys Thr Cys Pro Val Thr Pro Cys Tyr Ser Trp Val Leu Gly Asn Trp				
	1155	1160	1165	
Ser Ala Cys Lys Leu Glu Gly Gly Asp Cys Gly Glu Gly Val Gln Ile				
	1170	1175	1180	
Arg Ser Leu Ser Cys Met Val His Ser Gly Ser Ile Ser His Ala Ala				
1185	1190	1195	1200	
Gly Arg Val Glu Asp Ala Leu Cys Gly Glu Met Pro Phe Gln Asp Ser				
	1205	1210	1215	
Ile Leu Lys Gln Leu Cys Ser Val Pro Cys Pro Gly Asp Cys His Leu				
	1220	1225	1230	
Thr Glu Trp Ser Glu Trp Ser Thr Cys Glu Leu Thr Cys Ile Asp Gly				
	1235	1240	1245	
Arg Ser Phe Glu Thr Val Gly Arg Gln Ser Arg Ser Arg Thr Phe Ile				
	1250	1255	1260	
Ile Gln Ser Phe Glu Asn Gln Asp Ser Cys Pro Gln Gln Val Leu Glu				
1265	1270	1275	1280	
Thr Arg Pro Cys Thr Gly Gly Lys Cys Tyr His Tyr Thr Trp Lys Ala				
	1285	1290	1295	
Ser Leu Trp Asn Asn Asn Glu Arg Thr Val Trp Cys Gln Arg Ser Asp				
	1300	1305	1310	
Gly Val Asn Val Thr Gly Gly Cys Ser Pro Gln Ala Arg Pro Ala Ala				
	1315	1320	1325	
Ile Arg Gln Cys Ile Pro Ala Cys Arg Lys Pro Phe Ser Tyr Cys Thr				
	1330	1335	1340	
Gln Gly Gly Val Cys Gly Cys Glu Lys Gly Tyr Thr Glu Ile Met Lys				
1345	1350	1355	1360	
Ser Asn Gly Phe Leu Asp Tyr Cys Met Lys Val Pro Gly Ser Glu Asp				
	1365	1370	1375	
Lys Lys Ala Asp Val Lys Asn Leu Ser Gly Lys Asn Arg Pro Val Asn				

1380	1385	1390
Ser Lys Ile His Asp Ile Phe Lys Gly Trp Ser Leu Gln Pro Leu Asp		
1395	1400	1405
Pro Asp Gly Arg Val Lys Ile Trp Val Tyr Gly Val Ser Gly Gly Ala		
1410	1415	1420
Phe Leu Ile Met Ile Phe Leu Ile Phe Thr Ser Tyr Leu Val Cys Lys		
1425	1430	1435
Lys Pro Lys Pro His Gln Ser Thr Pro Pro Gln Gln Lys Pro Leu Thr		
1445	1450	1455
Leu Ala Tyr Asp Gly Asp Leu Asp Met		
1460	1465	

<210> 3
 <211> 4773
 <212> DNA
 <213> homo sapiens

<400> 3

atgaggaagc	tctttctatt	gctttctctc	ttgctgtccc	atgcagctca	tttgggaaggc	60
aaaaaggata	atcagttcat	ctggaaacca	gggtccgtggg	gaaggtgtac	aggagactgt	120
gggtcccgag	gagtcagag	tcgggcagtg	tggtgttttc	atgttgacgg	gtggacaagt	180
cacctgtcta	actgtggtga	gagcaacagg	cctccaaagg	aaagaagttg	tttccgagtt	240
tgtgactggc	acagtgacct	ctttcagtg	gagggtttctg	actggcacca	ctgtgtgctt	300
gttccttacg	ctcgcggtga	agtcaagcct	cggactgcag	agtgtgtgac	ggctcagcat	360
ggactgcagc	accggatggg	gcgctgcatt	cagaagctga	accgaactgt	ggttgcaaat	420
gaaatatgcg	aacactttgc	ccttcagcct	cctacagaac	aggcttgcc	cattccttgt	480
ccccgggatt	gtgtagtata	tgagttctta	ccatgggtcca	actgtagcaa	gggatgtggg	540
aagaaattgc	agcatagaac	tcgcgcggtc	atagctcccc	ctctctttgg	tggtttgcaa	600
tgtccaaatc	tgactgagtc	aagagcctgt	gatgctccca	tttcctgtcc	tcttggggaa	660
gaggaatata	catttagcct	taagggttga	ccatggagta	aatgcagact	gcctcatctt	720
aaagaaatta	atccaagcgg	aagaactggt	ctggatttta	actctgattc	aaatgagcga	780
gtcaccttta	aacatcaaag	ttacaaagca	catcatcatt	cgaagtcttg	ggcaatagag	840
ataggttatc	aaaccgggca	ggtttcgtgt	acaagaagtg	atggacaaaa	tgctatgtta	900
agcctttgcc	ttcaagattc	cttcccattg	actgttcagt	cctgcatcat	gccccaaagac	960
tgtgaaacat	cccagtggtc	ctcctggagc	cctgctcca	agacatgccg	ttcagggagt	1020
ctcttgccag	gatttaggag	caggagccgg	aacgtgaagc	acatggctat	tggaggtgga	1080
aaggagtgtc	ctgaacttct	tgagaaagag	gcctgcattg	ttgaaggaga	acttctgcag	1140
caatgtccca	ggtattcctg	gagaacttct	gaatggaaa	aatgccaa	ctctctctc	1200
ctcgagcagc	aggatcccca	ctggcatgtg	acgggaccgg	tgtgtggcgg	tgggatccag	1260
acccgggagg	tgtactgtgc	ccagagcgta	ccagcagctg	ccgcactgag	ggccaaggaa	1320
gtctctagac	ctgtggaaaa	ggcattatgt	gtgggacccg	ccccgttgcc	ctctcagctc	1380
tgcaatatcc	cttgctctac	ggactgcata	gtatcttcct	ggtcagcctg	gggctgtgtc	1440
atccatgaaa	actgtcatga	acctcagggg	aaaaaaggat	ttagaacgag	gcagcgccat	1500
gtcctcatgg	aatctacagg	gcctgcaggg	cattgccctc	atttggtgga	gtctgttcct	1560
tgtgaggatc	caatgtgcta	ccgatggctg	gcacagaag	ggatctgttt	ccctgatcat	1620
ggaaaatgtg	gcttgggaca	tcgtattctg	aaggccgtct	gccagaatga	ccgcggagaa	1680
gatgtatcag	ggagtctttg	cccagttccc	cctcctcctg	agaggaagtc	ttgtgaaatt	1740
ccctgccgaa	tggactgtgt	gctgagcgag	tggacggagt	ggcatcctctg	ttcccagttc	1800
tgttcaaata	aaaactcaga	tgggaaacag	accaggtcaa	gaactatcct	ggcactggct	1860
ggggaagggtg	gaaagccatg	tccccctagt	caggctctcc	aagagcatcg	tttgtgtaat	1920
gaccattcct	gtatgcagct	tactggggag	acatcgccct	ggggcccttg	ttctgaggac	1980
acatttgtaa	ctgcccttaa	tgcaaccatt	ggctggaatg	gagaagccac	gtgtggtgta	2040
ggcattcaga	ctcggagagt	cttctgtgtc	aagagtcacg	tgggacaagt	aatgacccaa	2100
agatgtccag	attctactcg	acctgaaact	gtgcgcccct	gttttctccc	atgcaaaaaa	2160
gactgtattg	tgactgcttt	cagtgagtg	acaccctgcc	caaggatgtg	ccaagcagga	2220

```

aatgccacag taaaacagtc tcgatacaga atcatcatcc aagaagcagc caatggaggc 2280
caggaatgcc cagatacctt atatgaggag agagagtgtg aagatgtttc cttgtgtcct 2340
gtatatcggt ggaagccaca gaaatggagc ccttgcatct tagtgccaga gtctgtcttg 2400
cagggaataa cgggcagcag tgaagcctgt ggaaaggggt taaaaacaag agctgtctca 2460
tgcatctctg atgacaaccg gtcagcagaa atgatggaat gcctcaagca gacaaacggc 2520
atgcctctcc ttgtgcaaga atgcacagtc ccatgtcgag aagactgcac cttcactgct 2580
tggtccaagt ttacgccctg ctccacgaac tgtgaagcca caaaaagtag gcggcgacag 2640
ctcacaggga aaagcagaaa gaaggagaaa tgccaggatt ctgaccttta ccctctagt 2700
gagacagaac tatgtccttg tgatgaattt atatcccaac cttatggaaa ctggtcagat 2760
tgcattcttc cagaaggcag aagggagcct caccgaggac tgcgggtaca agcagacagc 2820
aaagaatgtg gagaaggcct gcgctttcga gcagtagcct gttctgataa aaatggaaga 2880
cctgttgacc cctccttctg cagcagctct gggtacattc aagaaaaatg tgtcattccc 2940
tgcccatttg attgcaagtt aagcgatttg tctagtgtgg ggtcttgcat ttcattctgt 3000
ggaattggag tgagaattcg atccaaatgg ctaaaagaaa aaccttacia tggaggacga 3060
ccatgtccca aactggatct caagaatcag gtacatgagg cagtcccatg ttacagttag 3120
tgcaatcagt attcctgggt tgtagaacac tggctctcat gcaaaatcaa caatgagctg 3180
aggtccctgc gctgtggagg aggaacacaa tctaggaaaa tcagatgtgt gaatactgcg 3240
gatggtgaag gtggagcagt ggatagcaac ctgtgcaacc aggatgaaat tccccagaa 3300
acccagtcct gttctcttat gtgtcccaat gagtgtgtca tgtctgagt 3360
agcaaagcc cacagtcagt cgatccccac acaatgcaga gaagaactcg ccacctgcta 3420
agaccatcac tgaactcaag gacttgtgct gaagactcac aggtgcagcc ttgctcctg 3480
aatgaaaaatt gcttccagtt ccagtacaat ctaacagagt ggagcacatg ccagctgagt 3540
gaaaacgcac cctgtgtgca aggcgtcagg accgcctgc taagctgtgt gtgcagtgat 3600
ggcaagccag tcagcatgga ccaatgtgag cagcataatt tggagaagcc ccagagaatg 3660
agcattccct gcttgggtgga atgcgtggtc aactgtcagc tctcaggggtg gacggcttgg 3720
acagagtgtt cacagacctg tggccatgga ggtcgaatga gccggactcg atttatcatt 3780
atgccaaccc aaggagaagg acggccatgc cccacagagc ttaccagga gaaaacctgc 3840
ccagtgacct cctgctacag ctgggtcctt ggcaactgggt ctgcatgtaa attggagggt 3900
gggagactgt ggaaggagt tcagatccgc agcctttcct gcatgggtcca cagtgggtca 3960
atatctcatg cagctggacg tgtcgaggat gcaactgtgt gagaaatgcc ctttcaggac 4020
agcatcctga agcagctgtg ttctgtgcct tgcccaggag actgccattt aacagaatgg 4080
tcagagtgga gcacatgtga attaacctgc attgatggaa gaagctttga gactgtgggc 4140
cgccagtcta gatcaaggac ttttataatt cagtcttttg agaaccaaga cagtgtcccc 4200
caacagggtt tagaaacacg cccttgtaca ggaggcaaat gttatcacta cacatggaaa 4260
gcaagtcttt ggaacaataa cgaacgaact gtatggtgcc agcgttcaga tggcgtaaat 4320
gtcacaggag gctgtcctcc tcaggccccg cctgtgtcca ttcggcagtg cattccagcc 4380
tgcaaaaaac ctttctccta ctgtacacag ggtggagtct gtggttgtga gaagggtat 4440
acagagataa tgaaatcaaa tggtttcctg gattactgca tgaaagtacc aggctcagag 4500
gataaaaaag ctgatgtgaa aaacctttct gggaaaaaca gacctgtgaa ttcaaaaaata 4560
catgatattt ttaaaggatg gtctcttcaa ccacttgatc cagatggccg agtaaaaaatt 4620
tggttttatg gcgtttcagg tggcgctttt ctcatcatga ttttcctaatt atttacttcc 4680
taccttgttt gcaagaagcc aaaaccacat caaagcacac ctcccaaca gaagcctctg 4740
accttagcct acgatggaga cttagacatg taa 4773

```

<210> 4

<211> 1590

<212> PRT

<213> homo sapiens

<400> 4

```

Met Arg Lys Leu Phe Leu Leu Leu Ser Leu Leu Leu Ser His Ala Ala
 1           5           10           15
His Leu Glu Gly Lys Lys Asp Asn Gln Phe Ile Trp Lys Pro Gly Pro
          20           25           30
Trp Gly Arg Cys Thr Gly Asp Cys Gly Pro Gly Gly Val Gln Ser Arg
        35           40           45

```


Ala	Val	Trp	Cys	Phe	His	Val	Asp	Gly	Trp	Thr	Ser	His	Leu	Ser	Asn	50	55	60
Cys	Gly	Glu	Ser	Asn	Arg	Pro	Pro	Lys	Glu	Arg	Ser	Cys	Phe	Arg	Val	65	70	75
Cys	Asp	Trp	His	Ser	Asp	Leu	Phe	Gln	Trp	Glu	Val	Ser	Asp	Trp	His	85	90	95
His	Cys	Val	Leu	Val	Pro	Tyr	Ala	Arg	Gly	Glu	Val	Lys	Pro	Arg	Thr	100	105	110
Ala	Glu	Cys	Val	Thr	Ala	Gln	His	Gly	Leu	Gln	His	Arg	Met	Val	Arg	115	120	125
Cys	Ile	Gln	Lys	Leu	Asn	Arg	Thr	Val	Val	Ala	Asn	Glu	Ile	Cys	Glu	130	135	140
His	Phe	Ala	Leu	Gln	Pro	Pro	Thr	Glu	Gln	Ala	Cys	Leu	Ile	Pro	Cys	145	150	155
Pro	Arg	Asp	Cys	Val	Val	Ser	Glu	Phe	Leu	Pro	Trp	Ser	Asn	Cys	Ser	165	170	175
Lys	Gly	Cys	Gly	Lys	Lys	Leu	Gln	His	Arg	Thr	Arg	Ala	Val	Ile	Ala	180	185	190
Pro	Pro	Leu	Phe	Gly	Gly	Leu	Gln	Cys	Pro	Asn	Leu	Thr	Glu	Ser	Arg	195	200	205
Ala	Cys	Asp	Ala	Pro	Ile	Ser	Cys	Pro	Leu	Gly	Glu	Glu	Glu	Tyr	Thr	210	215	220
Phe	Ser	Leu	Lys	Val	Gly	Pro	Trp	Ser	Lys	Cys	Arg	Leu	Pro	His	Leu	225	230	235
Lys	Glu	Ile	Asn	Pro	Ser	Gly	Arg	Thr	Val	Leu	Asp	Phe	Asn	Ser	Asp	245	250	255
Ser	Asn	Glu	Arg	Val	Thr	Phe	Lys	His	Gln	Ser	Tyr	Lys	Ala	His	His	260	265	270
His	Ser	Lys	Ser	Trp	Ala	Ile	Glu	Ile	Gly	Tyr	Gln	Thr	Arg	Gln	Val	275	280	285
Ser	Cys	Thr	Arg	Ser	Asp	Gly	Gln	Asn	Ala	Met	Leu	Ser	Leu	Cys	Leu	290	295	300
Gln	Asp	Ser	Phe	Pro	Leu	Thr	Val	Gln	Ser	Cys	Ile	Met	Pro	Lys	Asp	305	310	315
Cys	Glu	Thr	Ser	Gln	Trp	Ser	Ser	Trp	Ser	Pro	Cys	Ser	Lys	Thr	Cys	325	330	335
Arg	Ser	Gly	Ser	Leu	Leu	Pro	Gly	Phe	Arg	Ser	Arg	Ser	Arg	Asn	Val	340	345	350
Lys	His	Met	Ala	Ile	Gly	Gly	Gly	Lys	Glu	Cys	Pro	Glu	Leu	Leu	Glu	355	360	365
Lys	Glu	Ala	Cys	Ile	Val	Glu	Gly	Glu	Leu	Leu	Gln	Gln	Cys	Pro	Arg	370	375	380
Tyr	Ser	Trp	Arg	Thr	Ser	Glu	Trp	Lys	Glu	Cys	Gln	Val	Ser	Leu	Leu	385	390	395
Leu	Glu	Gln	Gln	Asp	Pro	His	Trp	His	Val	Thr	Gly	Pro	Val	Cys	Gly	405	410	415
Gly	Gly	Ile	Gln	Thr	Arg	Glu	Val	Tyr	Cys	Ala	Gln	Ser	Val	Pro	Ala	420	425	430
Ala	Ala	Ala	Leu	Arg	Ala	Lys	Glu	Val	Ser	Arg	Pro	Val	Glu	Lys	Ala	435	440	445
Leu	Cys	Val	Gly	Pro	Ala	Pro	Leu	Pro	Ser	Gln	Leu	Cys	Asn	Ile	Pro	450	455	460
Cys	Ser	Thr	Asp	Cys	Ile	Val	Ser	Ser	Trp	Ser	Ala	Trp	Gly	Leu	Cys	465	470	475
Ile	His	Glu	Asn	Cys	His	Glu	Pro	Gln	Gly	Lys	Lys	Gly	Phe	Arg	Thr	485	490	495

Arg	Gln	Arg	His	Val	Leu	Met	Glu	Ser	Thr	Gly	Pro	Ala	Gly	His	Cys	
			500					505					510			
Pro	His	Leu	Val	Glu	Ser	Val	Pro	Cys	Glu	Asp	Pro	Met	Cys	Tyr	Arg	
		515					520					525				
Trp	Leu	Ala	Ser	Glu	Gly	Ile	Cys	Phe	Pro	Asp	His	Gly	Lys	Cys	Gly	
	530					535					540					
Leu	Gly	His	Arg	Ile	Leu	Lys	Ala	Val	Cys	Gln	Asn	Asp	Arg	Gly	Glu	
545					550					555					560	
Asp	Val	Ser	Gly	Ser	Leu	Cys	Pro	Val	Pro	Pro	Pro	Pro	Glu	Arg	Lys	
				565					570					575		
Ser	Cys	Glu	Ile	Pro	Cys	Arg	Met	Asp	Cys	Val	Leu	Ser	Glu	Trp	Thr	
			580					585					590			
Glu	Trp	Ser	Ser	Cys	Ser	Gln	Ser	Cys	Ser	Asn	Lys	Asn	Ser	Asp	Gly	
		595				600						605				
Lys	Gln	Thr	Arg	Ser	Arg	Thr	Ile	Leu	Ala	Leu	Ala	Gly	Glu	Gly	Gly	
	610					615					620					
Lys	Pro	Cys	Pro	Pro	Ser	Gln	Ala	Leu	Gln	Glu	His	Arg	Leu	Cys	Asn	
625					630					635					640	
Asp	His	Ser	Cys	Met	Gln	Leu	His	Trp	Glu	Thr	Ser	Pro	Trp	Gly	Pro	
				645					650					655		
Cys	Ser	Glu	Asp	Thr	Leu	Val	Thr	Ala	Leu	Asn	Ala	Thr	Ile	Gly	Trp	
			660					665					670			
Asn	Gly	Glu	Ala	Thr	Cys	Gly	Val	Gly	Ile	Gln	Thr	Arg	Arg	Val	Phe	
		675					680					685				
Cys	Val	Lys	Ser	His	Val	Gly	Gln	Val	Met	Thr	Lys	Arg	Cys	Pro	Asp	
	690					695					700					
Ser	Thr	Arg	Pro	Glu	Thr	Val	Arg	Pro	Cys	Phe	Leu	Pro	Cys	Lys	Lys	
705					710					715					720	
Asp	Cys	Ile	Val	Thr	Ala	Phe	Ser	Glu	Trp	Thr	Pro	Cys	Pro	Arg	Met	
				725				730						735		
Cys	Gln	Ala	Gly	Asn	Ala	Thr	Val	Lys	Gln	Ser	Arg	Tyr	Arg	Ile	Ile	
			740					745					750			
Ile	Gln	Glu	Ala	Ala	Asn	Gly	Gly	Gln	Glu	Cys	Pro	Asp	Thr	Leu	Tyr	
		755				760						765				
Glu	Glu	Arg	Glu	Cys	Glu	Asp	Val	Ser	Leu	Cys	Pro	Val	Tyr	Arg	Trp	
	770					775					780					
Lys	Pro	Gln	Lys	Trp	Ser	Pro	Cys	Ile	Leu	Val	Pro	Glu	Ser	Val	Trp	
785					790					795					800	
Gln	Gly	Ile	Thr	Gly	Ser	Ser	Glu	Ala	Cys	Gly	Lys	Gly	Leu	Gln	Thr	
				805				810						815		
Arg	Ala	Val	Ser	Cys	Ile	Ser	Asp	Asp	Asn	Arg	Ser	Ala	Glu	Met	Met	
			820					825					830			
Glu	Cys	Leu	Lys	Gln	Thr	Asn	Gly	Met	Pro	Leu	Leu	Val	Gln	Glu	Cys	
		835					840					845				
Thr	Val	Pro	Cys	Arg	Glu	Asp	Cys	Thr	Phe	Thr	Ala	Trp	Ser	Lys	Phe	
	850					855					860					
Thr	Pro	Cys	Ser	Thr	Asn	Cys	Glu	Ala	Thr	Lys	Ser	Arg	Arg	Arg	Gln	
865				870						875					880	
Leu	Thr	Gly	Lys	Ser	Arg	Lys	Lys	Glu	Lys	Cys	Gln	Asp	Ser	Asp	Leu	
				885				890						895		
Tyr	Pro	Leu	Val	Glu	Thr	Glu	Leu	Cys	Pro	Cys	Asp	Glu	Phe	Ile	Ser	
		900						905					910			
Gln	Pro	Tyr	Gly	Asn	Trp	Ser	Asp	Cys	Ile	Leu	Pro	Glu	Gly	Arg	Arg	
		915					920					925				
Glu	Pro	His	Arg	Gly	Leu	Arg	Val	Gln	Ala	Asp	Ser	Lys	Glu	Cys	Gly	
	930					935					940					

Glu	Gly	Leu	Arg	Phe	Arg	Ala	Val	Ala	Cys	Ser	Asp	Lys	Asn	Gly	Arg	945	950	955	960
Pro	Val	Asp	Pro	Ser	Phe	Cys	Ser	Ser	Ser	Gly	Tyr	Ile	Gln	Glu	Lys		965	970	975
Cys	Val	Ile	Pro	Cys	Pro	Phe	Asp	Cys	Lys	Leu	Ser	Asp	Trp	Ser	Ser	980	985		990
Trp	Gly	Ser	Cys	Ser	Ser	Ser	Cys	Gly	Ile	Gly	Val	Arg	Ile	Arg	Ser	995	1000	1005	
Lys	Trp	Leu	Lys	Glu	Lys	Pro	Tyr	Asn	Gly	Gly	Arg	Pro	Cys	Pro	Lys	1010	1015	1020	
Leu	Asp	Leu	Lys	Asn	Gln	Val	His	Glu	Ala	Val	Pro	Cys	Tyr	Ser	Glu	1025	1030	1035	1040
Cys	Asn	Gln	Tyr	Ser	Trp	Val	Val	Glu	His	Trp	Ser	Ser	Cys	Lys	Ile		1045	1050	1055
Asn	Asn	Glu	Leu	Arg	Ser	Leu	Arg	Cys	Gly	Gly	Gly	Thr	Gln	Ser	Arg	1060	1065	1070	
Lys	Ile	Arg	Cys	Val	Asn	Thr	Ala	Asp	Gly	Glu	Gly	Gly	Ala	Val	Asp	1075	1080	1085	
Ser	Asn	Leu	Cys	Asn	Gln	Asp	Glu	Ile	Pro	Pro	Glu	Thr	Gln	Ser	Cys	1090	1095	1100	
Ser	Leu	Met	Cys	Pro	Asn	Glu	Cys	Val	Met	Ser	Glu	Trp	Gly	Leu	Trp	1105	1110	1115	1120
Ser	Lys	Cys	Pro	Gln	Ser	Cys	Asp	Pro	His	Thr	Met	Gln	Arg	Arg	Thr		1125	1130	1135
Arg	His	Leu	Leu	Arg	Pro	Ser	Leu	Asn	Ser	Arg	Thr	Cys	Ala	Glu	Asp	1140	1145	1150	
Ser	Gln	Val	Gln	Pro	Cys	Leu	Leu	Asn	Glu	Asn	Cys	Phe	Gln	Phe	Gln	1155	1160	1165	
Tyr	Asn	Leu	Thr	Glu	Trp	Ser	Thr	Cys	Gln	Leu	Ser	Glu	Asn	Ala	Pro	1170	1175	1180	
Cys	Gly	Gln	Gly	Val	Arg	Thr	Arg	Leu	Leu	Ser	Cys	Val	Cys	Ser	Asp	1185	1190	1195	1200
Gly	Lys	Pro	Val	Ser	Met	Asp	Gln	Cys	Glu	Gln	His	Asn	Leu	Glu	Lys		1205	1210	1215
Pro	Gln	Arg	Met	Ser	Ile	Pro	Cys	Leu	Val	Glu	Cys	Val	Val	Asn	Cys	1220	1225	1230	
Gln	Leu	Ser	Gly	Trp	Thr	Ala	Trp	Thr	Glu	Cys	Ser	Gln	Thr	Cys	Gly	1235	1240	1245	
His	Gly	Gly	Arg	Met	Ser	Arg	Thr	Arg	Phe	Ile	Ile	Met	Pro	Thr	Gln	1250	1255	1260	
Gly	Glu	Gly	Arg	Pro	Cys	Pro	Thr	Glu	Leu	Thr	Gln	Glu	Lys	Thr	Cys	1265	1270	1275	1280
Pro	Val	Thr	Pro	Cys	Tyr	Ser	Trp	Val	Leu	Gly	Asn	Trp	Ser	Ala	Cys		1285	1290	1295
Lys	Leu	Glu	Gly	Gly	Asp	Cys	Gly	Glu	Gly	Val	Gln	Ile	Arg	Ser	Leu	1300	1305	1310	
Ser	Cys	Met	Val	His	Ser	Gly	Ser	Ile	Ser	His	Ala	Ala	Gly	Arg	Val	1315	1320	1325	
Glu	Asp	Ala	Leu	Cys	Gly	Glu	Met	Pro	Phe	Gln	Asp	Ser	Ile	Leu	Lys	1330	1335	1340	
Gln	Leu	Cys	Ser	Val	Pro	Cys	Pro	Gly	Asp	Cys	His	Leu	Thr	Glu	Trp	1345	1350	1355	1360
Ser	Glu	Trp	Ser	Thr	Cys	Glu	Leu	Thr	Cys	Ile	Asp	Gly	Arg	Ser	Phe		1365	1370	1375
Glu	Thr	Val	Gly	Arg	Gln	Ser	Arg	Ser	Arg	Thr	Phe	Ile	Ile	Gln	Ser	1380	1385	1390	

.Phe Glu Asn Gln Asp Ser Cys Pro Gln Gln Val Leu Glu Thr Arg Pro
1395 1400 1405
Cys Thr Gly Gly Lys Cys Tyr His Tyr Thr Trp Lys Ala Ser Leu Trp
1410 1415 1420
Asn Asn Asn Glu Arg Thr Val Trp Cys Gln Arg Ser Asp Gly Val Asn
1425 1430 1435 1440
Val Thr Gly Gly Cys Ser Pro Gln Ala Arg Pro Ala Ala Ile Arg Gln
1445 1450 1455
Cys Ile Pro Ala Cys Arg Lys Pro Phe Ser Tyr Cys Thr Gln Gly Gly
1460 1465 1470
Val Cys Gly Cys Glu Lys Gly Tyr Thr Glu Ile Met Lys Ser Asn Gly
1475 1480 1485
Phe Leu Asp Tyr Cys Met Lys Val Pro Gly Ser Glu Asp Lys Lys Ala
1490 1495 1500
Asp Val Lys Asn Leu Ser Gly Lys Asn Arg Pro Val Asn Ser Lys Ile
1505 1510 1515 1520
His Asp Ile Phe Lys Gly Trp Ser Leu Gln Pro Leu Asp Pro Asp Gly
1525 1530 1535
Arg Val Lys Ile Trp Val Tyr Gly Val Ser Gly Gly Ala Phe Leu Ile
1540 1545 1550
Met Ile Phe Leu Ile Phe Thr Ser Tyr Leu Val Cys Lys Lys Pro Lys
1555 1560 1565
Pro His Gln Ser Thr Pro Pro Gln Gln Lys Pro Leu Thr Leu Ala Tyr
1570 1575 1580
Asp Gly Asp Leu Asp Met
1585 1590

<210> 5

<211> 4821

<212> DNA

<213> homo sapiens

<400> 5

```

atgtttccaa agagcaacct aacagtcact tgctgggtat ggaggagcat gaggaagctc 60
tttctattgc tttctctctt gctgtcccat gcagctcatt tggaaggcaa aaaggataat 120
cagttcatct ggaaaccagg tccgtgggga aggtgtacag gagactgtgg tcccggagga 180
gtccagagtc gggcagtgtg gtgttttcat gttgacgggt ggacaagtca cctgtctaac 240
tgtggtgaga gcaacaggcc tccaaaggaa agaagttgtt tccgagtttg tgactggcac 300
agtgccctct ttcagtggga ggtttctgac tggcaccact gtgtgcttgt tccttacgct 360
cgcggtgaag tcaagcctcg gactgcagag tgtgtgacgg ctcagcatgg actgcagcac 420
cggatggtgc gctgcattca gaagctgaac cgaactgtgg ttgcaaataa aatatgcgaa 480
cactttgccc ttcagcctcc tacagaacag gcttgccctca ttccttgtcc ccgggattgt 540
gtagtatctg agttcttacc atggtccaac tgtagcaagg gatgtgggaa gaaattgcag 600
catagaactc gcgcggtcat agctccccct ctctttggtg gtttgcaatg tccaaatctg 660
actgagtcaa gagcctgtga tgctcccat tctgtcctc ttggggaaga ggaatataca 720
tttagcctta aggttgagacc atggagtaaa tgcagactgc ctcactctaa agaaattaat 780
ccaagcggaa gaactgttct ggattttaac tctgattcaa atgagcgagt cacctttaa 840
catcaaagtt acaaagcaca tcatcattcg aagtcttggg caatagagat aggttatcaa 900
acccggcagg tttcgtgtac aagaagtgat ggacaaaatg ctatgttaag cctttgcctt 960
caagattcct tcccattgac tgttcagtcc tgcattcatgc ccaaagactg tgaaacctcc 1020
cagtggtcct cctggagccc ctgctccaag acatgccgtt cagggagtct cttgccagga 1080
tttaggagca ggagccggaa cgtgaagcac atggctattg gaggtggaaa ggagtgtcct 1140
gaacttcttg agaaagaggc ctgcattgtt gaaggagaa ttctgcagca atgtcccagg 1200
tattcctgga gaacttctga atggaaagaa tgccaagtct ctctcctcct cgagcagcag 1260
gatccccact ggcattgtgac gggacccgtg tgtggcgggtg ggatccagac ccgggaggtg 1320

```

tactgtgccc	agagcgtacc	agcagctgcc	gcactgaggg	ccaaggaagt	ctctagacct	1380
gtggaaaagg	cattatgtgt	gggacccgcc	ccgttgccct	ctcagctctg	caatatccct	1440
tgctctacgg	actgcatagt	atcttcctgg	tcagcctggg	gcctgtgcat	ccatgaaaac	1500
tgatcatgaac	ctcaggggaa	aaaaggatct	agaacgaggg	agcgccatgt	cctcatggaa	1560
tctacagggc	ctgcagggca	ttgccctcat	ttggtggagt	ctgttccttg	tgaggatcca	1620
atgtgctacc	gatggctggc	atcagaaggg	atctgtttcc	ctgatcatgg	aaaatgtggc	1680
ctgggacatc	gtattctgaa	ggcgcctgac	cagaatgacc	gcggagaaga	tgatcaggg	1740
agtctttgcc	cagttccccc	tcctcctgag	aggaagtctt	gtgaaattcc	ctgccgaatg	1800
gactgtgtgc	tgagcgagtg	gacggagtg	tcctcctgtt	cccagtcctg	ttcaaataaa	1860
aactcagatg	ggaaacagac	caggtcaaga	actatcctgg	cactggctgg	ggaaggtgga	1920
aagccatgtc	cccctagtca	ggctctccaa	gagcatcggt	tgtgtaatga	ccattcctgt	1980
atgcagcttc	actgggagac	atcgccctgg	ggcccttggt	ctgaggacac	attggttaact	2040
gcccttaatg	caaccattgg	ctggaatgga	gaagccacgt	gtggtgtagg	cattcagact	2100
cggagagtct	tctgtgtcaa	gagtcacgtg	ggacaagtaa	tgaccaaag	atgtccagat	2160
tctactcgac	ctgaaactgt	gcgcccctgt	tttctcccat	gcaaaaaaga	ctgtattgtg	2220
actgctttca	gtgagtggac	accctgcccc	aggatgtgcc	aagcaggaaa	tgccacagta	2280
aaacagtctc	gatacagaat	catcatccaa	gaagcagcca	atggaggcca	ggaatgcccc	2340
gataccttat	atgaggagag	agagtgtgaa	gatgtttcct	tgtgtcctgt	atatcggtgg	2400
aagccacaga	aatggagccc	ttgcatctta	gtgccagagt	ctgtctggca	gggaataacg	2460
ggcagcagtg	aagcctgtgg	aaaggggtta	caaacaagag	ctgtctcatg	catctctgat	2520
gacaaccggg	cagcagaaat	gatggaatgc	ctcaagcaga	caaacggcat	gcctctcctt	2580
gtgcaagaat	gcacagtccc	atgtcgagaa	gactgcacct	tactgcttg	gtccaagttt	2640
acgccttgct	ccacgaactg	tgaagccaca	aaaagtaggc	ggcgacagct	cacagggaaa	2700
agcagaaaaga	aggagaaatg	ccaggattct	gacctttacc	ctctagtggg	gacagaacta	2760
tgctcctgtg	atgaatttat	atcccaacct	tatggaaact	ggtcagattg	cattcttcca	2820
gaaggcagaa	gggagcctca	ccgaggactg	cgggtacaag	cagacagcaa	agaatgtgga	2880
gaaggcctgc	gcttttcgagc	agtagcctgt	tctgataaaa	atggaagacc	tggtgacccc	2940
tccttctgca	gcagctctgg	ttacattcaa	gaaaaatgtg	tcattccctg	cccatttgat	3000
tgcaagttaa	gcgattggtc	tagttggggg	tcttgacagt	catcttggtg	aattggagtg	3060
agaattcgat	ccaaatggct	aaaagaaaaa	ccttacaatg	gaggacgacc	atgtcccaaa	3120
ctggatctca	agaatcaggt	acatgaggca	gtcccatgtt	acagtgagtg	caatcagtat	3180
tcctgggttg	tagaacactg	gtcttcatgc	aaaatcaaca	atgagctgag	gtccctgctg	3240
tgtggaggag	gaacacaatc	taggaaaatc	agatgtgtga	atactgcgga	tggtgaaggt	3300
ggagcagtg	atagcaacct	gtgcaaccag	gatgaaattc	ccccagaaac	ccagtcctgt	3360
tctcttatgt	gtcccaatga	gtgtgtcatg	tctgagtggg	gactttggag	caaatgccc	3420
cagtcatgct	atccccacac	aatgcagaga	agaactcgcc	acctgctaag	accatcactg	3480
aactcaagga	cttgtgtgta	agactcacag	gtgcagcctt	gcctcctgaa	tgaaaattgc	3540
ttccagttcc	agtacaatct	aacagagtgg	agcacatgcc	agctgagtga	aaacgcaccc	3600
tgtggtcaag	gcgtcaggac	ccgcctgcta	agctgtgtgt	gcagtgatgg	caagccagtc	3660
agcatggacc	aatgtgagca	gcataatttg	gagaagcccc	agagaatgag	cattccctgc	3720
ttggtggaat	gcgtggtcaa	ctgtcagttc	tcagggtgga	cggcttgga	agagtgttca	3780
cagacctgtg	gccatggagg	tcgaatgagc	cggactcgat	ttatcattat	gccaacccaa	3840
ggagaaggac	ggccatgccc	cacagagctt	accaggaga	aaacctgccc	agtgaccccc	3900
tgctacagct	gggtccttgg	caactggtct	gcatgtaaat	tggagggtgg	agactgtggg	3960
gaaggagttc	agatccgcag	cctttcctgc	atggtccaca	gtggttcaat	atctcatgca	4020
gctggacgtg	tcgaggatgc	actgtgtgga	gaaatgccct	ttcaggacag	catcctgaag	4080
cagctgtgtt	ctgtgccttg	cccaggagac	tgccatttaa	cagaatggtc	agagtggagc	4140
acatgtgaat	taacctgcat	tgatggaaga	agctttgaga	ctgtgggccg	ccagtctaga	4200
tcaaggactt	ttataattca	gtcttttgag	aaccaagaca	gctgccccca	acaggttcta	4260
gaaacacgcc	cttgtacagg	aggcaaatgt	tatcactaca	catggaaagc	aagtcttttg	4320
aacaataacg	aacgaactgt	atggtgccag	cggtcagatg	gcgttaatgt	cacaggaggc	4380
tgctccccct	aggcccgtcc	tgctgccatt	cggcagtgca	ttccagcctg	cagaaaacct	4440
ttctcctact	gtacacaggg	tggagtctgt	ggttgtagga	agggctatac	agagataatg	4500
aaatcaaatg	gtttcctgga	ttactgcatg	aaagtaccag	gctcagagga	taaaaaagct	4560
gatgtgaaaa	acctttctgg	gaaaaacaga	cctgtgaatt	caaaaaatac	tgatattttt	4620
aaaggatggt	ctcttcaacc	acttgatcca	gatggccgag	taaaaatttg	ggtttatggc	4680

```

gtttcaggtg gcgcttttct catcatgatt ttctaatat ttacttcta ccttggttgc 4740
aagaagccaa aaccacatca aagcacacct ccccaacaga agcctctgac cttagcctac 4800
gatggagact tagacatgta a 4821

```

<210> 6

<211> 1606

<212> PRT

<213> homo sapiens

<400> 6

```

Met Phe Pro Lys Ser Asn Leu Thr Val Thr Cys Trp Val Trp Arg Ser
 1          5          10          15
Met Arg Lys Leu Phe Leu Leu Leu Ser Leu Leu Leu Ser His Ala Ala
          20          25          30
His Leu Glu Gly Lys Lys Asp Asn Gln Phe Ile Trp Lys Pro Gly Pro
          35          40          45
Trp Gly Arg Cys Thr Gly Asp Cys Gly Pro Gly Gly Val Gln Ser Arg
          50          55          60
Ala Val Trp Cys Phe His Val Asp Gly Trp Thr Ser His Leu Ser Asn
65          70          75          80
Cys Gly Glu Ser Asn Arg Pro Pro Lys Glu Arg Ser Cys Phe Arg Val
          85          90          95
Cys Asp Trp His Ser Asp Leu Phe Gln Trp Glu Val Ser Asp Trp His
          100          105          110
His Cys Val Leu Val Pro Tyr Ala Arg Gly Glu Val Lys Pro Arg Thr
          115          120          125
Ala Glu Cys Val Thr Ala Gln His Gly Leu Gln His Arg Met Val Arg
          130          135          140
Cys Ile Gln Lys Leu Asn Arg Thr Val Val Ala Asn Glu Ile Cys Glu
145          150          155          160
His Phe Ala Leu Gln Pro Pro Thr Glu Gln Ala Cys Leu Ile Pro Cys
          165          170          175
Pro Arg Asp Cys Val Val Ser Glu Phe Leu Pro Trp Ser Asn Cys Ser
          180          185          190
Lys Gly Cys Gly Lys Lys Leu Gln His Arg Thr Arg Ala Val Ile Ala
          195          200          205
Pro Pro Leu Phe Gly Gly Leu Gln Cys Pro Asn Leu Thr Glu Ser Arg
          210          215          220
Ala Cys Asp Ala Pro Ile Ser Cys Pro Leu Gly Glu Glu Tyr Thr
225          230          235          240
Phe Ser Leu Lys Val Gly Pro Trp Ser Lys Cys Arg Leu Pro His Leu
          245          250          255
Lys Glu Ile Asn Pro Ser Gly Arg Thr Val Leu Asp Phe Asn Ser Asp
          260          265          270
Ser Asn Glu Arg Val Thr Phe Lys His Gln Ser Tyr Lys Ala His His
          275          280          285
His Ser Lys Ser Trp Ala Ile Glu Ile Gly Tyr Gln Thr Arg Gln Val
          290          295          300
Ser Cys Thr Arg Ser Asp Gly Gln Asn Ala Met Leu Ser Leu Cys Leu
305          310          315          320
Gln Asp Ser Phe Pro Leu Thr Val Gln Ser Cys Ile Met Pro Lys Asp
          325          330          335
Cys Glu Thr Ser Gln Trp Ser Ser Trp Ser Pro Cys Ser Lys Thr Cys
          340          345          350
Arg Ser Gly Ser Leu Leu Pro Gly Phe Arg Ser Arg Ser Arg Asn Val
          355          360          365

```

Lys	His	Met	Ala	Ile	Gly	Gly	Gly	Lys	Glu	Cys	Pro	Glu	Leu	Leu	Glu
370						375					380				
Lys	Glu	Ala	Cys	Ile	Val	Glu	Gly	Glu	Leu	Leu	Gln	Gln	Cys	Pro	Arg
385					390					395					400
Tyr	Ser	Trp	Arg	Thr	Ser	Glu	Trp	Lys	Glu	Cys	Gln	Val	Ser	Leu	Leu
				405					410					415	
Leu	Glu	Gln	Gln	Asp	Pro	His	Trp	His	Val	Thr	Gly	Pro	Val	Cys	Gly
			420					425					430		
Gly	Gly	Ile	Gln	Thr	Arg	Glu	Val	Tyr	Cys	Ala	Gln	Ser	Val	Pro	Ala
		435					440					445			
Ala	Ala	Ala	Leu	Arg	Ala	Lys	Glu	Val	Ser	Arg	Pro	Val	Glu	Lys	Ala
		450				455					460				
Leu	Cys	Val	Gly	Pro	Ala	Pro	Leu	Pro	Ser	Gln	Leu	Cys	Asn	Ile	Pro
465					470					475					480
Cys	Ser	Thr	Asp	Cys	Ile	Val	Ser	Ser	Trp	Ser	Ala	Trp	Gly	Leu	Cys
				485					490					495	
Ile	His	Glu	Asn	Cys	His	Glu	Pro	Gln	Gly	Lys	Lys	Gly	Phe	Arg	Thr
			500					505					510		
Arg	Gln	Arg	His	Val	Leu	Met	Glu	Ser	Thr	Gly	Pro	Ala	Gly	His	Cys
		515					520					525			
Pro	His	Leu	Val	Glu	Ser	Val	Pro	Cys	Glu	Asp	Pro	Met	Cys	Tyr	Arg
		530				535					540				
Trp	Leu	Ala	Ser	Glu	Gly	Ile	Cys	Phe	Pro	Asp	His	Gly	Lys	Cys	Gly
545					550					555					560
Leu	Gly	His	Arg	Ile	Leu	Lys	Ala	Val	Cys	Gln	Asn	Asp	Arg	Gly	Glu
				565					570					575	
Asp	Val	Ser	Gly	Ser	Leu	Cys	Pro	Val	Pro	Pro	Pro	Pro	Glu	Arg	Lys
			580					585					590		
Ser	Cys	Glu	Ile	Pro	Cys	Arg	Met	Asp	Cys	Val	Leu	Ser	Glu	Trp	Thr
		595					600					605			
Glu	Trp	Ser	Ser	Cys	Ser	Gln	Ser	Cys	Ser	Asn	Lys	Asn	Ser	Asp	Gly
		610				615					620				
Lys	Gln	Thr	Arg	Ser	Arg	Thr	Ile	Leu	Ala	Leu	Ala	Gly	Glu	Gly	Gly
625					630					635					640
Lys	Pro	Cys	Pro	Pro	Ser	Gln	Ala	Leu	Gln	Glu	His	Arg	Leu	Cys	Asn
			645					650						655	
Asp	His	Ser	Cys	Met	Gln	Leu	His	Trp	Glu	Thr	Ser	Pro	Trp	Gly	Pro
			660					665					670		
Cys	Ser	Glu	Asp	Thr	Leu	Val	Thr	Ala	Leu	Asn	Ala	Thr	Ile	Gly	Trp
		675					680					685			
Asn	Gly	Glu	Ala	Thr	Cys	Gly	Val	Gly	Ile	Gln	Thr	Arg	Arg	Val	Phe
		690				695				700					
Cys	Val	Lys	Ser	His	Val	Gly	Gln	Val	Met	Thr	Lys	Arg	Cys	Pro	Asp
705					710					715					720
Ser	Thr	Arg	Pro	Glu	Thr	Val	Arg	Pro	Cys	Phe	Leu	Pro	Cys	Lys	Lys
				725					730					735	
Asp	Cys	Ile	Val	Thr	Ala	Phe	Ser	Glu	Trp	Thr	Pro	Cys	Pro	Arg	Met
			740					745					750		
Cys	Gln	Ala	Gly	Asn	Ala	Thr	Val	Lys	Gln	Ser	Arg	Tyr	Arg	Ile	Ile
		755					760					765			
Ile	Gln	Glu	Ala	Ala	Asn	Gly	Gly	Gln	Glu	Cys	Pro	Asp	Thr	Leu	Tyr
		770				775					780				
Glu	Glu	Arg	Glu	Cys	Glu	Asp	Val	Ser	Leu	Cys	Pro	Val	Tyr	Arg	Trp
785					790					795					800
Lys	Pro	Gln	Lys	Trp	Ser	Pro	Cys	Ile	Leu	Val	Pro	Glu	Ser	Val	Trp
				805					810					815	

Gln Gly Ile Thr Gly Ser Ser Glu Ala Cys Gly Lys Gly Leu Gln Thr
 820 825 830
 Arg Ala Val Ser Cys Ile Ser Asp Asp Asn Arg Ser Ala Glu Met Met
 835 840 845
 Glu Cys Leu Lys Gln Thr Asn Gly Met Pro Leu Leu Val Gln Glu Cys
 850 855 860
 Thr Val Pro Cys Arg Glu Asp Cys Thr Phe Thr Ala Trp Ser Lys Phe
 865 870 875 880
 Thr Pro Cys Ser Thr Asn Cys Glu Ala Thr Lys Ser Arg Arg Arg Gln
 885 890 895
 Leu Thr Gly Lys Ser Arg Lys Lys Glu Lys Cys Gln Asp Ser Asp Leu
 900 905 910
 Tyr Pro Leu Val Glu Thr Glu Leu Cys Pro Cys Asp Glu Phe Ile Ser
 915 920 925
 Gln Pro Tyr Gly Asn Trp Ser Asp Cys Ile Leu Pro Glu Gly Arg Arg
 930 935 940
 Glu Pro His Arg Gly Leu Arg Val Gln Ala Asp Ser Lys Glu Cys Gly
 945 950 955 960
 Glu Gly Leu Arg Phe Arg Ala Val Ala Cys Ser Asp Lys Asn Gly Arg
 965 970 975
 Pro Val Asp Pro Ser Phe Cys Ser Ser Gly Tyr Ile Gln Glu Lys
 980 985 990
 Cys Val Ile Pro Cys Pro Phe Asp Cys Lys Leu Ser Asp Trp Ser Ser
 995 1000 1005
 Trp Gly Ser Cys Ser Ser Ser Cys Gly Ile Gly Val Arg Ile Arg Ser
 1010 1015 1020
 Lys Trp Leu Lys Glu Lys Pro Tyr Asn Gly Gly Arg Pro Cys Pro Lys
 1025 1030 1035 1040
 Leu Asp Leu Lys Asn Gln Val His Glu Ala Val Pro Cys Tyr Ser Glu
 1045 1050 1055
 Cys Asn Gln Tyr Ser Trp Val Val Glu His Trp Ser Ser Cys Lys Ile
 1060 1065 1070
 Asn Asn Glu Leu Arg Ser Leu Arg Cys Gly Gly Gly Thr Gln Ser Arg
 1075 1080 1085
 Lys Ile Arg Cys Val Asn Thr Ala Asp Gly Glu Gly Gly Ala Val Asp
 1090 1095 1100
 Ser Asn Leu Cys Asn Gln Asp Glu Ile Pro Pro Glu Thr Gln Ser Cys
 1105 1110 1115 1120
 Ser Leu Met Cys Pro Asn Glu Cys Val Met Ser Glu Trp Gly Leu Trp
 1125 1130 1135
 Ser Lys Cys Pro Gln Ser Cys Asp Pro His Thr Met Gln Arg Arg Thr
 1140 1145 1150
 Arg His Leu Leu Arg Pro Ser Leu Asn Ser Arg Thr Cys Ala Glu Asp
 1155 1160 1165
 Ser Gln Val Gln Pro Cys Leu Leu Asn Glu Asn Cys Phe Gln Phe Gln
 1170 1175 1180
 Tyr Asn Leu Thr Glu Trp Ser Thr Cys Gln Leu Ser Glu Asn Ala Pro
 1185 1190 1195 1200
 Cys Gly Gln Gly Val Arg Thr Arg Leu Leu Ser Cys Val Cys Ser Asp
 1205 1210 1215
 Gly Lys Pro Val Ser Met Asp Gln Cys Glu Gln His Asn Leu Glu Lys
 1220 1225 1230
 Pro Gln Arg Met Ser Ile Pro Cys Leu Val Glu Cys Val Val Asn Cys
 1235 1240 1245
 Gln Leu Ser Gly Trp Thr Ala Trp Thr Glu Cys Ser Gln Thr Cys Gly
 1250 1255 1260

His Gly Gly Arg Met Ser Arg Thr Arg Phe Ile Ile Met Pro Thr Gln
 1265 1270 1275 1280
 Gly Glu Gly Arg Pro Cys Pro Thr Glu Leu Thr Gln Glu Lys Thr Cys
 1285 1290 1295
 Pro Val Thr Pro Cys Tyr Ser Trp Val Leu Gly Asn Trp Ser Ala Cys
 1300 1305 1310
 Lys Leu Glu Gly Gly Asp Cys Gly Glu Gly Val Gln Ile Arg Ser Leu
 1315 1320 1325
 Ser Cys Met Val His Ser Gly Ser Ile Ser His Ala Ala Gly Arg Val
 1330 1335 1340
 Glu Asp Ala Leu Cys Gly Glu Met Pro Phe Gln Asp Ser Ile Leu Lys
 1345 1350 1355 1360
 Gln Leu Cys Ser Val Pro Cys Pro Gly Asp Cys His Leu Thr Glu Trp
 1365 1370 1375
 Ser Glu Trp Ser Thr Cys Glu Leu Thr Cys Ile Asp Gly Arg Ser Phe
 1380 1385 1390
 Glu Thr Val Gly Arg Gln Ser Arg Ser Arg Thr Phe Ile Ile Gln Ser
 1395 1400 1405
 Phe Glu Asn Gln Asp Ser Cys Pro Gln Gln Val Leu Glu Thr Arg Pro
 1410 1415 1420
 Cys Thr Gly Gly Lys Cys Tyr His Tyr Thr Trp Lys Ala Ser Leu Trp
 1425 1430 1435 1440
 Asn Asn Asn Glu Arg Thr Val Trp Cys Gln Arg Ser Asp Gly Val Asn
 1445 1450 1455
 Val Thr Gly Gly Cys Ser Pro Gln Ala Arg Pro Ala Ala Ile Arg Gln
 1460 1465 1470
 Cys Ile Pro Ala Cys Arg Lys Pro Phe Ser Tyr Cys Thr Gln Gly Gly
 1475 1480 1485
 Val Cys Gly Cys Glu Lys Gly Tyr Thr Glu Ile Met Lys Ser Asn Gly
 1490 1495 1500
 Phe Leu Asp Tyr Cys Met Lys Val Pro Gly Ser Glu Asp Lys Lys Ala
 1505 1510 1515 1520
 Asp Val Lys Asn Leu Ser Gly Lys Asn Arg Pro Val Asn Ser Lys Ile
 1525 1530 1535
 His Asp Ile Phe Lys Gly Trp Ser Leu Gln Pro Leu Asp Pro Asp Gly
 1540 1545 1550
 Arg Val Lys Ile Trp Val Tyr Gly Val Ser Gly Gly Ala Phe Leu Ile
 1555 1560 1565
 Met Ile Phe Leu Ile Phe Thr Ser Tyr Leu Val Cys Lys Lys Pro Lys
 1570 1575 1580
 Pro His Gln Ser Thr Pro Pro Gln Gln Lys Pro Leu Thr Leu Ala Tyr
 1585 1590 1595 1600
 Asp Gly Asp Leu Asp Met
 1605

<210> 7
 <211> 5080
 <212> DNA
 <213> homo sapiens

 <220>
 <221> misc_feature
 <222> 3, 7, 14, 15
 <223> n = A,T,C or G

<400> 7

ganccanagt agcnnccggt ttgccagacg ctggaatggg tggctctccg acacacacca 60
ccatctttct tgcgctcggg aagctcgggg ctgagcggct cccagagggt acggcgggcg 120
ctctggcgag acgggaatag gcaagtcaag aggctgaaa atctgaagca tgtttccaaa 180
gagcaacctt acagtcactt gctgggtatg gaggagcatg aggaagctct ttctattgct 240
ttctctcttg ctgtcccatg cagctcattt ggaaggcaaa aaggataatc agttcatctg 300
gaaaccagggt ccgtggggaa ggtgtacagg agactgtggt cccggaggag tccagagtcg 360
ggcagtgtgg tgttttcatg ttgacgggtg gacaagtcac ctgtctaact gtggtgagag 420
caacaggcct ccaaaggaaa gaagtgtttt ccgagtttgt gactggcaca gtgacctctt 480
tcagtgggag gtttctgact ggcaccactg tgtgcttgtt ccttacgctc gcggtgaagt 540
caagcctcgg actgcagagt gtgtgacggc tcagcatgga ctgcagcacc ggatggtgcg 600
ctgcattcag aagctgaacc gaactgtggt tgcaaatgaa atatgcgaac actttgccct 660
tcagcctcct acagaacagg cttgcctcat tccttgtccc cgggattgtg tagtatctga 720
gttcttacc a tgggtccaa ctgtagcaagg atgtgggaag aaattgcagc atagaactcg 780
cgcggtcata gctccccctc tctttggtgg tttgcaatgt ccaaactctga ctgagtcagg 840
agcctgtgat gctcccattt cctgtcctct tggggaagag gaatatacat ttagccttaa 900
ggttggacca tggagtaa at gcagactgcc tcatcttaaa gaaattaatc caagcggaa 960
aactgttctg gattttaact ctgattcaaa tgagcagagtc accttaaac atcaaagtta 1020
caaagcacat catcattcga agtcttgggc aatagagata gggttatcaa cccggcagg 1080
ttcgtgtaca agaagtgat gacaaaatgc tatgttaagc ctttgccttc aagattcctt 1140
cccattgact gttcagtcct gcatcatgcc caaagactgt gaaacctccc agtggctctc 1200
ctggagcccc tgetccaaga catgccgttc agggagcttc ttgccaggat ttaggagcag 1260
gagccggaac gtgaagcaca tggctattgg aggtggaaag gagtgtcctg aacttctgga 1320
gaaaaggcc tgcattgttg aaggagaact tctgcagcaa tgtcccagg atctcctagg 1380
aacttctgaa tggaaaagaat gccaaagtct tctcctcctc gagcagcagg atccccactg 1440
gcatgtgacg ggacccgtgt gtggcggtgg gatccagacc cgggagggtg actgtgcccc 1500
gagcgtacca gcagctgccg cactgagggc caaggaaagtc tctagacctg tggaaaaggc 1560
attatgtgtg ggacccgccc cgttgccctc tcagctctgc aatatccctt gctctacgga 1620
ctgcatagta tcttcttggt cagcctgggg cctgtgcac catgaaaact gtcatgaacc 1680
tcaggggaaa aaaggattta gaacgaggca gcgccatgtc ctcatggaat ctacagggcc 1740
tgcagggcat tgcctcatt tgggtggagtc tgttcttgt gaggatccaa tgtgctaccg 1800
atggctggca tcagaaggga tctgtttccc tgatcatgga aaatgtggcc tgggacatcg 1860
tattctgaag gccgtctgcc agaatgaccg cggagaagat gtatcaggga gtctttgccc 1920
agttccccct cctcctgaga ggaagtcttg tgaaattccc tgccgaatgg actgtgtgct 1980
gagcagtggt acggagtggg catcctgttc ccagtcctgt tcaaataaaa actcagatgg 2040
gaaacagacc aggtcaagaa ctatcctggc actggctggg gaagggtggaa agccatgtcc 2100
ccctagtcag gctctccaag agcatcggtt gtgtaatgac cattcctgta tgcagcttca 2160
ctgggagaca tcgccttggg gcccttggtc tgaggacaca ttggttaactg cccttaatgc 2220
aaccattggc tggaaatggag aagccacgtg tgggttaggc attcagactc ggagagtctt 2280
ctgtgtcāag agtcacgtgg gacaagtaaa gacaaaaaga tgtccagatt ctactcgacc 2340
tgaaactgtg cgtccctgtt ttctcccatg caaaaaagac tgtattgtga ctgctttcag 2400
tgagtggaca cctgccccaa ggatgtgcca agcaggaaaat gccacagtaa aacagtctcg 2460
atacagaatc atcatccaag aagcagccaa tggaggccag gaatgccag ataccttata 2520
tgaggagaga gagtgtgaag atgtttcctt gtgtcctgta tatcggtgga agccacagaa 2580
atggagccct tgcattctag tgccagagtc tgtctggcag ggaataacgg gcagcagtga 2640
agcctgtgga aaggggttac aaacaagagc tgtctcatgc atctctgatg acaaccggtc 2700
agcagaaatg atggaatgcc tcaagcagac aaacggcatg cctctccttg tgcaagaatg 2760
cacagtccca tgtcgagaag actgcacctt cactgcttgg tccaagttaa cgccctgctc 2820
cacgaactgt gaagccacaa aaagtaggcg gcgacagctc acagggaaaa gcagaaagaa 2880
ggagaaatgc caggattctg acctttaccc tctagtggag acagaactat gtccttgtga 2940
tgaatttata tcccaacctt atggaaaactg gtcagattgc attcttccag aaggcagaag 3000
ggagcctcac cgaggactgc gggatcaaac agacagcaaa gaatgtggag aaggcctgcy 3060
ctttcgagca gtagcctgtt ctgataaaaa tggaaagacct gttgaccctt ccttctgcag 3120
cagctctggt tacattcaag aaaaatgtgt cattccctgc ccatttgatt gcaagttaa 3180
cgattggtct agttgggggt cttgcagttc atcttgtgga attggagtga gaattcgatc 3240
caaatggcta aaagaaaac cttacaatgg aggacgacca tgtcccaaac tggatctcaa 3300

gaatcaggta	catgaggcag	tcccatgtta	cagtgagtgc	aatcagtatt	cctggggtgt	3360
agaacactgg	tcttcatgca	aaatcaacaa	tgagctgagg	tccctgcgct	gtggaggagg	3420
aacacaatct	aggaaaatca	gatgtgtgaa	tactgcggat	ggtgaagggt	gagcagtgga	3480
tagcaacctg	tgcaaccagg	atgaaattcc	cccagaaacc	cagtccctgtt	ctcttatgtg	3540
tcccaatgag	tgtgtcatgt	ctgagtgggg	actttggagc	aaatgcccac	agtcatgcga	3600
tccccacaca	atgcagagaa	gaactcgcca	cctgctaaga	ccatcactga	actcaaggac	3660
ttgtgctgaa	gactcacagg	tgacgccttg	cctcctgaat	gaaaattgct	tccagttcca	3720
gtacaatcta	acagagtgga	gcacatgcca	gctgagtga	aacgcaccct	gtgggtcaagg	3780
cgtcaggacc	cgcctgctaa	gctgtgtgtg	cagtgatggc	aagccagtca	gcatggacca	3840
atgtgagcag	cataatttgg	agaagcccca	gagaatgagc	attccctgct	tgggtggaatg	3900
cgtggtcaac	tgtcagctct	caggggtggac	ggcttggaca	gagtgttcac	agacctgtgg	3960
ccatggagggt	cgaatgagcc	ggactcgatt	tatcattatg	ccaacccaag	gagaaggacg	4020
gccatgcccc	acagagctta	cccaggagaa	aacctgcccc	gtgacccctt	gctacagctg	4080
ggtccttggc	aactgggtctg	catgtaaatt	ggagggtgga	gactgtgggg	aaggagtcca	4140
gatccgcagc	ctttcctgca	tggtccacag	tggttcaata	tctcatgcag	ctggacgtgt	4200
cgaggatgca	ctgtgtggag	aaatgccctt	tcaggacagc	atcctgaagc	agctgtgttc	4260
tgtgccttgc	ccaggagact	gccatttaac	agaatggtca	gagtggagca	catgtgaatt	4320
aacctgcatt	gatggaagaa	gctttgagac	tgtgggcccgc	cagtctagat	caaggacttt	4380
tataattcag	tcttttgaga	accaagacag	ctgcccccaa	caggttctag	aaacacgccc	4440
ttgtacagga	ggcaaatgtt	atcactacac	atggaaagca	agtctttgga	acaataacga	4500
acgaactgta	tggtgccagc	gttcagatgg	cgттаatgtc	acaggaggct	gctccccctca	4560
ggcccgtcct	gctgccattc	ggcagtgcac	tccagcctgc	agaaaacctt	tctcctactg	4620
tacacagggg	ggagtctgtg	gttgtgagaa	gggctataca	gagataatga	aatcaaatgg	4680
tttcctggat	tactgcatga	aagtaccagg	ctcagaggat	aaaaaagctg	atgtgaaaaa	4740
cctttctggg	aaaaacagac	ctgtgaattc	aaaaatacat	gatattttta	aaggatgggtc	4800
tcttcaacca	cttgatccag	atggccgagt	aaaaatttgg	gtttatggcg	tttcaggtgg	4860
cgctttttctc	atcatgattt	tcctaataat	tacttcctac	cttgtttgca	agaagccaaa	4920
accacatcaa	agcacacctc	cccaacagaa	gcctctgacc	ttagcctacg	atggagactt	4980
agacatgtaa	tctgaaaaag	aaatccaaat	gtagacatca	actgccttaa	ccgcttttctc	5040
ttttgtagct	ctcagacttc	tcagtttttt	gaggaatctc			5080